Listing of Claims:

1. (Currently Amended) A pattern dependent jitter measuring apparatus comprising:

a clock generating unit which generates a clock signal having a predetermined frequency; and

a pattern generating unit which outputs to a measuring object a data signal, ~~having~~ which has a predetermined pattern in which one frame is configured from a predetermined bit length, so as to be synchronized with the clock signal outputted from the clock signal generating unit; ~~, wherein the pattern dependent jitter measuring apparatus further comprises:~~

a waveform information acquiring unit which receives ~~the~~ a data signal to be measured outputted from the ~~pattern generating unit~~ measuring object as a data signal to be measured [[,]] and receives the clock signal outputted from the clock generating unit, and which acquires ~~information of~~ waveform information in ~~the~~ a same time domain of the data signal to be measured and the clock signal;

an averaging processing unit which carries out averaging processing on the waveform information acquired by the waveform information acquiring unit;

a phase difference detecting unit ~~determining the~~ which determines a per-bit phase difference between the data signal to

be measured and the clock signal, based on the waveform information averaged by the averaging processing unit;

a frequency band limiting processing unit which carries out predetermined frequency band limiting processing on information of the per-bit phase difference obtained by the phase difference detecting unit; and

a measured result outputting unit which outputs as pattern dependent jitter the phase difference information on which the frequency band limiting processing is carried out ~~by the frequency band limiting processing unit, as pattern dependent jitter~~

wherein the pattern generating unit is configured to output to the waveform information acquiring unit a frame synchronization signal synchronized with data output timing at an arbitrary bit position in one frame of the data signal; and

wherein the waveform information acquiring unit is configured to acquire a predetermined number of frames of the waveform information of the data signal to be measured and the clock signal by using a timing when the frame synchronization signal is inputted as a standard timing.

2. (Currently Amended) The pattern dependent jitter measuring apparatus according to claim 1, wherein the pattern generating unit is configured ~~to include a~~ such that the data

signal ~~in which~~ outputted therefrom includes an unscrambled specific pattern ~~exists~~ at a head position of each frame ~~, as the data signal outputted from the pattern generating unit~~.

Claim 3 (Canceled).

4. (Currently Amended) The pattern dependent jitter measuring apparatus according to claim ~~3~~ 1, wherein the measuring object ~~includes equipment~~ is configured such that [[,]] when pattern dependent jitter is included in ~~a~~ the data signal ~~to be~~ inputted thereto, a pattern dependent jitter component included in the inputted data signal ~~can be removed~~ is removable by waveform shaping processing ~~at the inside thereof~~ in the measuring object, and ~~a~~ the data signal ~~including~~ to be measured outputted from the measuring object includes random noise jitter and pattern dependent jitter ~~which~~ internally generated by the measuring object itself ~~internally generates is outputted to the waveform information acquiring unit as the data signal to be measured~~.

Claim 5 (Canceled).

6. (Currently Amended) The pattern dependent jitter measuring apparatus according to claim ~~5~~ 1, wherein the averaging

processing unit is configured to determine one frame of waveform information of the clock signal and the data signal to be measured from ~~each of~~ which ~~the~~ a random noise jitter component has been removed, by averaging the predetermined number of frames of waveform information which are acquired by the waveform information acquiring unit.

7. (Currently Amended) The pattern dependent jitter measuring apparatus according to claim 6, wherein the phase difference detecting unit ~~is configured such that~~ determines a phase difference ~~(time difference)~~ ΔT(i) between level displacement timing of the clock signal ~~which is determined by the averaging processing unit, and from which the random noise jitter component has been removed,~~ and a code boundary of the data signal to be measured, ~~is determined for each bit~~ which is determined by the averaging processing unit and from which the random noise jitter component has been removed, and ~~such that~~ determines a per-bit phase difference ΔT(i)' ~~is determined by~~ as follows:

ΔT(1)' = 0, and

ΔT(i)' = ΔT(i) - ΔT(1) (i = 2, 3, …, N),

by correcting ~~the~~ phase differences ΔT(2), ΔT(3), …, ΔT(N) from the second bit on by the ~~bit~~ phase difference ΔT(1) of the first bit.

8. (Currently Amended) The pattern dependent jitter measuring apparatus according to claim 7, wherein the phase difference detecting unit is configured such that detection of the level displacement timing is carried out after it is judged whether ~~or not~~ an amplitude of the data signal to be measured, ~~that~~ which is determined by the averaging processing unit, exceeds a threshold value.

9. (Currently Amended) The pattern dependent jitter measuring apparatus according to claim 7, wherein the phase difference detecting unit detects timing only when a code of the data signal to be measured determined by the averaging processing unit is changed [[,]] with respect to the detection of the level displacement timing, and determines a time difference between the timing and the level displacement timing ~~of the clock signal~~ as ~~a~~ the phase difference.

10. (Currently Amended) The pattern dependent jitter measuring apparatus according to claim 7, wherein the phase difference detecting unit is configured such that, when the code of the data signal to be measured determined by the averaging processing unit is not changed [[,]] with respect to the detection of the level displacement timing, ~~a~~ the per-bit phase difference of the previous bit is allocated.

11. (Currently Amended) The pattern dependent jitter measuring apparatus according to claim 1, wherein the frequency band limiting processing unit ~~is configured to include~~ comprises a digital filter formed by a digital signal ~~processing means~~ processor.

12. (Currently Amended) The pattern dependent jitter measuring apparatus according to claim 1, wherein the waveform information acquiring unit and the averaging processing unit are ~~configured from~~ formed by a sampling oscilloscope.

13. (Currently Amended) A pattern dependent jitter measuring method comprising:

outputting to a measuring object a data signal which is synchronized with a clock signal having a predetermined frequency, and which has a predetermined pattern of a predetermined bit length; ~~, wherein the pattern dependent jitter measuring method further comprises~~:

outputting a frame synchronization signal synchronized with data output timing at an arbitrary bit position in one frame of the data signal;

receiving ~~the~~ a data signal outputted from the measuring object as a data signal to be measured, and receiving the clock signal, ~~thereby to~~ and acquiring waveform information in ~~the~~ a

same time domain of the data signal to be measured and the clock signal;

carrying out averaging processing on the ~~waveform~~ acquired ~~by the acquiring of the~~ waveform information;

detecting phase differences of the data signal to be measured and the clock signal, for each bit of the data signal to be measured, based on the waveform information ~~obtained by~~ subjected to the averaging processing;

carrying out predetermined frequency band limiting processing on the phase difference information detected for each bit; and

outputting as pattern dependent jitter the phase difference information on which the predetermined frequency band limiting processing is carried out; ~~, as pattern dependent jitter~~

wherein the acquiring of the waveform information includes acquiring a predetermined number of frames of waveform information of the data signal to be measured and the clock signal by using a timing when the frame synchronization signal is inputted as a standard timing.

14. (Currently Amended) The pattern dependent jitter measuring method according to claim 13, wherein the ~~outputting of a~~ outputted data signal ~~outputs a data signal in which~~ includes

an unscrambled pattern ~~exists~~ at a head portion of each frame ~~, as the data signal~~.

Claim 15 (Canceled).

16. (Currently Amended) The pattern dependent jitter measuring method according to claim ~~15~~ 13, wherein the measuring object ~~includes equipment~~ is configured such that [[,]] when the pattern dependent jitter is included in ~~a~~ the data signal ~~to be~~ inputted thereto, a pattern dependent jitter component included in the inputted data signal ~~can be removed~~ is removable by waveform shaping processing ~~at the inside thereof~~ in the measuring object, and ~~a~~ the data signal ~~including~~ to be measured outputted from the measuring object includes random noise jitter and pattern dependent jitter ~~which~~ internally generated by the measuring object itself ~~internally generates, is outputted as the data signal to be measured~~.

Claim 17 (Canceled).

18. (Currently Amended) The pattern dependent jitter measuring method according to claim ~~17~~ 13, wherein the averaging processing ~~determines~~ comprises determining one frame of waveform information of the clock signal and the data signal to be measured from ~~each of~~ which ~~the~~ a random noise jitter component has been removed, by averaging the acquired predetermined number

of frames of waveform information ~~acquired by the acquisition of waveform information~~.

19. (Currently Amended) The pattern dependent jitter measuring method according to claim 18, wherein the detecting of the phase difference ~~detects~~ comprises:

detecting for each bit a phase difference ~~(time difference)~~ $\Delta T(i)$ between level displacement timing of the clock signal ~~which is determined by the averaging processing unit, and from which the random noise jitter component has been removed,~~ and a code boundary of the data signal to be measured, ~~for each bit,~~ which is determined by the averaging processing and from which the random noise jitter component has been removed; and ~~determines~~

determining a per-bit phase difference DT(i)' ~~by~~ as follows:

$\Delta T(1)' = 0$, and

$\Delta T(i)' = \Delta T(i) - \Delta T(1) \quad (i = 2, 3, \ldots, N)$,

by correcting phase differences $\Delta T(2)$, $\Delta T(3)$, …, $\Delta T(N)$ from the second bit on by the ~~bit~~ phase difference $\Delta T(1)$ of the first bit.

20. (Currently Amended) The pattern dependent jitter measuring method according to claim ~~18~~ 19, wherein ~~the detecting of the phase difference is configured such that~~ detection of the level displacement timing is carried out after it is judged

whether ~~or not~~ an amplitude of the data signal to be measured determined by the averaging processing exceeds a threshold value.

21. (Currently Amended) The pattern dependent jitter measuring method according to claim ~~10~~ 19, wherein the detecting of the phase difference ~~detects~~ comprises detecting timing only when a code of the data signal to be measured determined by the averaging processing is changed [[,]] with respect to the detection of the level displacement timing, and ~~determines~~ determining a time difference between the timing and the level displacement timing ~~of the clock signal~~ as ~~a~~ the phase difference.

22. (Currently Amended) The pattern dependent jitter measuring method according to claim ~~10~~ 19, wherein ~~the detecting of the phase difference is configured such that,~~ when the code of the data signal to be measured determined by the equalization processing is not changed [[,]] with respect to the detection of the level displacement timing, ~~a~~ the per-bit phase difference of the previous bit is allocated.

23. (Original) The pattern dependent jitter measuring method according to claim 13, wherein the acquiring of the waveform information and the averaging processing are carried out by a sampling oscilloscope.